
Origin of lung mucus glands found, insights for cystic fibrosis, asthma

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Last week's big news at CIRM was the election of Jonathan Thomas as the new governing board chair, as we announced late Wednesday night. He will be replacing Robert Klein, who has served the agency since its inception in 2004. Not that anyone can replace Klein, exactly, but Thomas seems eager to step in and start leading the agency.

While many of us at CIRM were distracted by our board meeting and subsequent leadership change, CIRM grantees kept on doing science, as evidenced by a paper in Stem Cells which came out today.

Scientists with the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA have found the stem cell that makes all the cells of the mucus glands in the airways of the lungs. By and large, scientists assume that most tissues of the body arise from a pool of tissue-specific stem cells. These stem cells have been identified in the blood system, brain, muscle, skin and a variety of other tissues. Once found, scientists can begin developing ways of harnessing those cells to treat disease.

Until assistant professor Brigitte Gomperts and postdoctoral scholar Ahmed Hegab published this work, nobody knew the origin of the mucus cells in the airway. These cells play a critical role in protecting the body from infectious agents or toxins in the environment. A UCLA press release quotes Gomperts:

“We're very excited that we found this population of cells because it will allow us to study mechanisms of diseases of the upper airway. For example, there currently are no treatments for excess mucus production, which we see in cystic fibrosis, asthma and chronic obstructive pulmonary disease (COPD). But if we can understand the mechanisms of how these stem cells repair the mucus glands, then we may be able to find a way to put the brakes on the system and prevent mucus over production.”

I often read about people who claim that adult stem cells are as effective at treating disease as embryonic stem cells. What people seem not to understand is that there is no one adult stem cell. Stem cells of the blood system are fantastic, but they don't repair muscle, skin, brain, or, in this case, mucus glands. Finding these tissue-specific stem cells is the necessary first step to developing new therapies based on these cells.

Stem Cells, June 27, 2011

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